

A survey of the practice of regional anesthesia in Saudi Arabia

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ABSTRACT

Objective: This survey aimed to assess both the extent of practice and need for training in regional anesthesia among anesthesiologists in Saudi Arabia in 2012. **Methods:** We distributed an electronic survey among 382 anesthesiologists attending the bi-annual meetings of the Saudi Anesthetic Association, enquiring about their practice in regional anesthesia. Questions concerned the practice of regional anesthesia, use of ultrasound guidance, and the need for training workshops. **Results:** The response rate of anesthetists was 55.2% with most of them were males and had mean age of 25-50 years. Most anesthesiologists (88.2%) were practicing regional anesthesia frequently in the operating rooms (75.3%) rather than designated block room. From the respondents, only 14.2% did fellowship in regional anesthesia, 21.8% and 18.5% were using ultrasound and nerve stimulation guidance, respectively, 11.4% received formal training, and 86.3% were willing to attend training workshops on regional anesthesia. There was a significant negative correlation between the ultrasound users and their institutional positions ($r = -0.191$) ($P = 0.026$). **Conclusions:** We believe that more could be done to improve the practice of regional anesthesia in the Kingdom of Saudi Arabia, including the implementation of formal training and conduction of more frequent specialized courses/workshops in the field of regional anesthesia with special reference to ultrasound regional anesthesia blockade techniques.

Key words: Regional anesthesia, Saudi, survey, ultrasound guided regional blocks

INTRODUCTION

Regional anesthesia offers many advantages to the patient care compared to general anesthesia. It provides excellent post-operative analgesia, reduces the stress response,^[1] post-operative cognitive dysfunction,^[2] and duration of hospitalization.^[3] Moreover, it has an anti-inflammatory and anticancer effects.^[4,5]

Recently, regional anesthesia is frequently performed using ultrasound guidance because it provides high success rates, reduces complication rates and improves quality, performance time, and time to onset of blocks.^[6]

In general, the practice of regional anesthesia is variable among the anesthesiologists. Moreover, there is no available data can be used to evaluate the progress of this practice over the years in Saudi Arabia.

This survey aimed to assess both the extent of practice and the need for training in regional anesthesia in Saudi Arabia in 2012.

METHODS

A questionnaire was implemented and reviewed by two senior certified consultants in the regional anesthesia to fit the international standards. Questions were focused on anesthesiologists' characteristics (age, gender, position, hospital origin, and presence/and source of fellowship training in regional anesthesia), regional anesthesia practice, particularly about the preference, frequency, interest, motivations, location, and use of ultrasound and/or nerve stimulation guidance, the ultrasound guided regional techniques (use, source of training, possession, and need for ultrasound machine), and needs for conduction of further training workshops.

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The survey was distributed via the commercially available "Survey Monkey" software (www.surveymonkey.com) to all practicing anesthesiologists in Saudi Arabia, who are physically attending the bi-annual meetings of the Saudi Anaesthetic Association, via email and/or an electronic invitation message sent to the members of the Triple M (Morbidity Mortality Meeting (MMM)) anesthesia Yahoo group (<http://health.groups.yahoo.com/group/TripleM>). The latter was found in February 1999 aiming to the exchange of ideas and experiences in the practice of anesthesia in the Middle Eastern region.

Participants were requested to complete questions in the context of their current routine practice in regional anesthesia. After initial emailing and two subsequent follow ups were done, responses were collected by the Survey Monkey website.

Statistical analysis was carried out using SPSS software version 13 (SPSS, Inc., Chicago, Illinois). Data was expressed as frequency (percent). Pearson Correlation test was used to identify the correlations between the use of ultrasound guided regional anesthesia and gender, age, position, previous fellowship training in regional anesthesia, need for conduction of training workshops and possession and need for ultrasound machine. $P < 0.05$ was considered statistically significant.

RESULTS

We distributed 382 questionnaires to the targeted anesthesiologists and we received a response rate of 55.2% ($n=211$). Sample size was in accordance with national representation of health institutions.

The characteristics of the respondents showed that the highest percentage of the respondents 178 (84.4%) had mean age of 25-50 years and 144 (68%) of them were males [Table 1]. There were 68 (32.2%) consultants, 73 (34.6%) assistant consultants, 66 (31.3%) residents and one (0.5%) was a fellow in regional anesthesia.

Most of the respondents were working in governmental hospitals 105 (49.8%) whereas the rest were working in university 39 (18.5%), private 32 (15.2%) or military 29 (13.7%) hospitals. The majority of the respondents were from Jeddah 140 (66.4%) and Riyadh 40 (19%). From the respondents, 30 (14.2%) did fellowships in regional anesthesia in Egypt (11.8%), Saudi Arabia (5.7%), Europe (0.9%), India (0.5%) and Syria (0.5%) [Table 2].

Most anesthesiologists (88.2%) were practicing regional anesthesia daily (31.8%) or a weekly (37%), while only 17.1% reported giving regional anesthesia at least once per month or less [Figure 1 and Table 2].

Of the respondents, 82.5% ($n=174$) reported special interests in performing regional anesthesia [Figure 1]. The main reasons for that were to improve safety (38.4%) and outcome (33.6%) and reduce the costs of health care (15.2%) and the rate of complications (7.1%). However, the three main barriers to practice regional

Table 1: Respondents' characteristics

Respondents (%)	211/382 (55.2)
Age groups (%)	
25-30 years	47 (22.3)
30-35 years	28 (13.3)
35-40 years	35 (16.6)
40-45 years	38 (18)
45-50 years	30 (14.2)
>50 years	26 (12.3)
Gender (Male:Female)	144/211 (68.2:31.8)
Positions (%)	
Consultant	68 (32.2)
Assistant/associate consultant	73 (34.6)
Fellow	1 (0.5)
Resident	66 (31.3)
Hospital origin (%)	
Governmental	105 (49.8)
Military	29 (13.7)
University	39 (18.5)
Private	32 (15.2)
Fellowship in regional anesthesia	30 (14.2)

Data are expressed as number (percent)

Table 2: Practice of regional anesthesia

Respondents (%)	211/382 (55.2)
Fellowship in regional anesthesia (%)	30 (14.2)
Frequency of performing regional blocks (%)	
Daily	67 (31.8)
Weekly	78 (37)
Monthly or less	36 (17.1)
Interest in regional anesthesia	150 (71.1)
Reasons for performing (%)	
Safer	50 (23.7)
Less costly	1 (0.5)
Less complications	15 (7.1)
Improve outcome	52 (24.6)
Safer and less costly	12 (5.7)
Safer, less costly, improve outcome	19 (9)
Barriers to perform (%)	
Surgeon refusal	3 (1.4)
Time consuming	6 (2.8)
Failure of the technique	2 (0.9)
Where are the blocks performed? (%)	
Operating rooms	152 (72)
Designated block rooms	9 (4.3)
Both of them	7 (3.3)
Possession of an ultrasound machine	118 (55.9)

Data are expressed as number (percent)

anesthesia were its time consuming (2.8%), refusal of the surgeons (1.4%) and the failure rate of the blocks (0.9%) [Table 2].

Most of the participants were doing the regional blocks in the operating rooms (75.3%) and only (7.6%) were using a designated block room [Table 2].

Concerning the use of ultrasound and/or nerve stimulation guidance, 24.6% of respondents relied on the combined use of ultrasound and nerve stimulation to guide their regional blocks. Whereas, the use of either ultrasound or nerve stimulation guided regional blocks were reported by 21.8% and 18.5% of respondents, respectively [Figure 2]. Most anesthesiologists performing ultrasound-guided regional blocks received their training via courses/workshops (35.1%), self-learning (19%) and/or formal training (11.4%). Overall, most of the latter possessed an ultrasound machine (55.9%) and believed in their needs to use it (79.6%) [Table 3].

Correspondingly, 86.3% of the responders were more likely to attend the forthcoming training workshops on regional anesthesia. They reported that two to four training workshops would be needed annually [Table 3].

There was a significant positive correlation between the possession of an ultrasound machine and doing regional anesthesia ($r=0.677$) ($P<0.001$) and a negative correlation between the ultrasound users and their institutional positions ($r=-0.191$) ($P=0.026$).

DISCUSSION

This is the first survey to assess the practice of regional anesthesia among anesthesiologists who are practicing at the Kingdom of Saudi Arabia. Most of the respondents are practicing at governmental hospitals at the largest two cities of the Kingdom, namely Jeddah and Riyadh, where most the meetings of the Saudi Anesthetic Association were conducted.

Unsurprisingly, fewer numbers of the respondents did fellowships in regional anesthesia at different countries. This alerts the need to implement a Saudi Regional Anesthesia Fellowship Program to develop well-trained, experienced clinical practitioners whose expertise in regional anesthesia will foster better and safer clinical performance into everyday practice in the anesthesia suits.

The practice of regional anesthesia is frequently performed on daily and weekly basis among 88.2% of the respondent anesthesiologists in the Kingdom, because of its effectiveness in improvement of safety and outcome,

costs reduction and lessen the rate of complications. Unfortunately, the traditional concepts like; time consuming and failure rate of the blocks and lack of the understanding

Table 3: Learning of regional anesthesia

Respondents (%)	211/382 (55.2)
Sources (%)	
Courses, workshops	58 (27.5)
Self-learning	24 (11.4)
Formal-training	8 (3.8)
Courses, workshops, and self-learning	16 (7.6)
Looking for forthcoming workshops/courses (%)	
<50	23 (10.9)
50-70	44 (20.9)
70-90	52 (24.6)
≥90	36 (29.9)
Frequency of the needed training workshops/courses (%)	
Once per year	30 (14.2)
Twice per year	56 (26.5)
Three per year	40 (19)
Four per year	55 (26.1)

Data are expressed as number (percent)

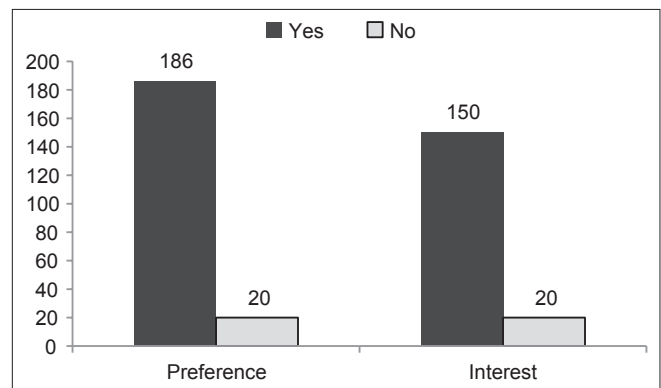


Figure 1: Preference and interest in performing regional blocks. Data are expressed as number

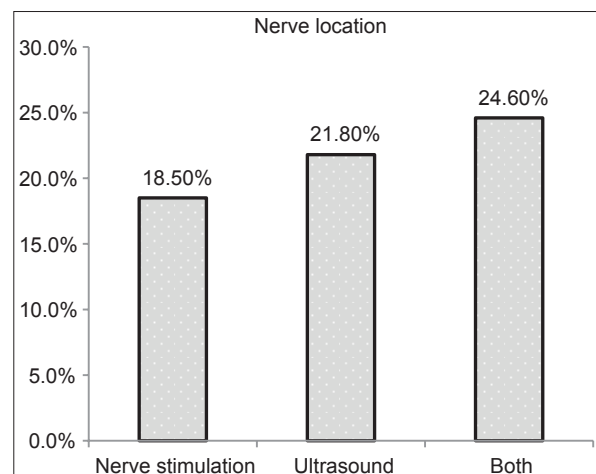


Figure 2: Preference and interest in performing regional blocks. Data are expressed as percentage

of the surgeons remain the most important barriers for 5.3% of those who are not practicing regional anesthesia.

The structure of regional anesthesia service should be implemented in all institution performing regional anesthesia, especially the presence of designated block room which we have described before.^[7] In the present survey we found that 75.3% of the practitioners were still performing their regional blocks in the operative rooms. This may lengthen the duration of anesthesia and it is not infrequently faced with surgeons' refusal because of their need to do their scheduled lists with rapid turnover.

More than one quarter of those performing regional blocks were using ultrasound to locate their needles, whereas one third of them were using adjunctive ultrasound and or nerve stimulation guidance for successful blocks. Others found that the combined use of ultrasound and nerve stimulator significantly decreases unsuccessful blockade and transposition need for a needle during manipulation without statistical differences in the quality of regional anesthesia.^[8,9] Moreover, electrical nerve stimulation and ultrasound guidance should be combined, especially for beginners, to confirm proximity to neural structures.^[10]

Surprisingly, only 7.5% of the respondents received formal training in the performing of ultrasound guided regional block which highlights the problem of lacking of formal training for regional anesthesia in the Kingdom. Similarly, an Irish survey was conducted on 113 trainers and trainees on the determinants of the learning ultrasound-guided axillary brachial plexus blockade. They concluded that optimum training requires a formal structured training program and they proposed for the optimization of the design of the curriculum, the training program and assessment on performing the procedure.^[11]

We reported that 86.3% of the responders were eager to be trained in more frequent specialized regional anesthesia workshops in the Saudi Arabia.

The younger anesthesiologists, especially residents, were more interested in practicing and learning of new techniques in regional anesthesia. This demonstrated the need to incorporate regional anesthesia in the curriculum of residency program and to conduct many workshops and courses in that field.

CONCLUSION

We believe that more could be done to improve the practice of regional anesthesia in the Kingdom of Saudi Arabia, including the implementation of formal training and conduction of more frequent specialized courses/workshops in the field of regional anesthesia with special reference to ultrasound regional anesthesia blockade techniques.

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